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IMPROVEMENTS MADE TO PACKAGING MACHINES

[PERFECTIONNEMENTS APPORTEES AUX MACHINES D'EMBALLAGE]

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Improvements made to packaging machines

The present invention pertains to packaging machines and, more particularly, to a device that allows one to wrap an article in a package.

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One aim of the present invention is to produce a packaging machine that includes a simple and improved device that delivers the packaging material to the article to be packaged.

Another aid of the present invention is to obtain a machine in which the packaging material is subjected to uniform tension while it is placed around an article.

The invention also aims to obtain a simple but safe packaging device.

Moreover, the invention aims to obtain a device by which the packaging material is picked up from a conveyor and is brought to a stop while it wraps an article, so that the packaging process is independent of the conveyor movement.

Two forms of embodiment, which are given as non-limiting examples, are shown in the attached drawings, in which:

Figure 1 is a lateral schematic drawing, partial sectional view, of an initial form of execution of the invention.

¹ Numbers in the margin indicate pagination in the foreign text.

Figure 2 is a plane view of one part of the form of execution of figure 1.

Figure 3 is a lateral diagrammatic view, partial sectional view, of a second form of execution of the invention.

Figure 4 is a plane view of one part of the form of execution of figure 3.

The device according to the form of execution of figures 1 and 2 includes two drive rollers 1 and 2, which work with one another to unroll a strip 3 of packaging material from a reserve roller or similar unit (not shown here). A rotary knife 4 that works with an opposing knife 5, preferably stationary, provided on the other side of the strip 3 is provided on one of the sides of the strip 3; the rotational speed of the rotary knife 4 determines the length of the segment of packaging material cut off from the strip 3. The cut lengths 6 of packaging material are brought by gravity to a conveyor given a general reference number 7 that is comprised of two parallel conveyor belts 8, which move along rollers 9 by which they are driven. /3

A means of suction 11 that communicates with the exterior by some perforations 12 extends along the belts 8, so that the lengths 6 of packaging material can be held while they are delivered to a track 13 on which the items to be packaged are brought. The track 13 is formed by the plates 14 and 15.

Some suction devices are provided on both sides of the track 13 near the conveyor belts 8, which are made in the form of suction units 16.

A control unit 17, shown diagrammatically and of a unique type of construction, is used to control the suction force exerted by the suction device 11 of the conveyor belts 8 and the suction units 16. A device 18 is also provided that propels the items to be packaged 21 along the track 13.

The device described earlier works in the following manner.

A strip 3 of packaging material is unrolled from the reserve roller or similar unit by means of the two drive rollers 1,2 and is cut into suitable lengths between the rotary cutter 4 and the opposing cutter 5. Each length 6 of packaging material is held by a suction force on the two conveyor belts 8 and is delivered up to the time that it reaches the delivery track 13 to which the articles 21 are brought and is positioned symmetrically with respect to the said track. When this position is reached, the suction action exerted by the suction device 11 of the conveyor belts 8 is interrupted and the suction action of the suction units 16 is initiated, in such a manner that the length 6 of packaging material is picked up from the conveyor belts 8 whose movement continues. The suction of the devices 11 and 16 is exerted in synchronism through the intermediary of the control unit 17. The length 6 of packaging material is immobilized by

the suction devices 16, independently of the movement of the conveyor belts 8. Now the item to be packaged 21 is pushed by the device 18 against the length 6, made stationary by the suction units 16. In this way the length 6 is folded over the item 21 while the packaging is then completed later in any suitable and known manner.

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One should note that while the length 6 of packaging material is folded it is lifted from the conveyor belts 8 and is made stationary by the suction units 16. For this reason the packaging process is independent of the movement of the conveyor belts 8.

Different modifications of the form of execution described here are possible. For example, in the second form of execution shown in figures 3 and 4, the conveyor belts 8 are replaced by two coaxial drums rigged with a suction device 111 that take the lengths 106 of the packaging material 103 along a circular track. The suction units 116 are provided with concave surfaces 122 oriented toward the drums 108 and concentric to the latter.

CLAIMS

A packaging machine, characterized by the following points, taken together, separately or in any combinations:

1. It includes a conveyor that delivers the packaging material toward a track on which the items to be packaged are

brought; some suction devices being provided on both sides of the said track and pick up the packaging material from the conveyor so as to place it in contact with the item to be packaged, while a device pushes the said items against the packaging material that then wraps the said item.

2. It includes a suction unit that holds the packaging material during its delivery.

3. The suction devices are arranged and made in such a manner that they pick up the packaging material from the conveyor in opposition to the suction action exerted by the suction unit of the said conveyor.

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4. It includes a device that controls in synchronism the suction devices and the suction means of the conveyor so that the packaging material is subjected to the action of the suction device of the conveyor during its delivery and that it is released by the said suction device when it is picked up from the conveyor by the suction units.

5. It includes a roller and a cutting device; the packaging material being formed by a continuous strip unrolled from the roll and cut into lengths by the cutting device.

6. The suction devices are arranged so as to essentially influence the entire adjacent surface of one length of packaging material.

7. The conveyor is arranged so as to move along a straight track.

8. The conveyor is arranged so as to move along a curved track; each of the suction devices being provided with a concave surface, concentric to the said curved track.

9. The curved track is a circular track.

Brussels, June 3, 1965

Mr. Alfred Schmermund

Five pages

Four figures

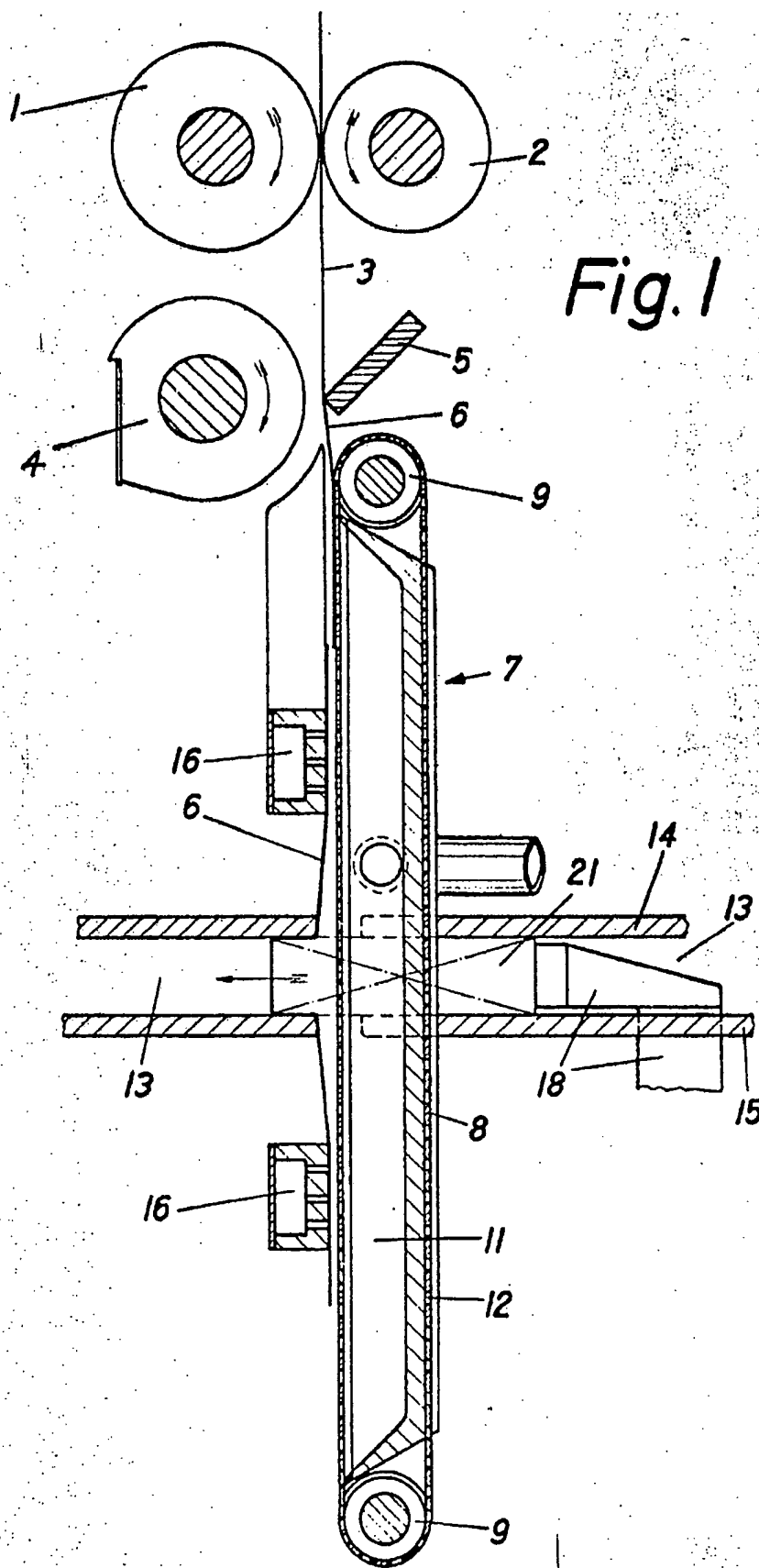
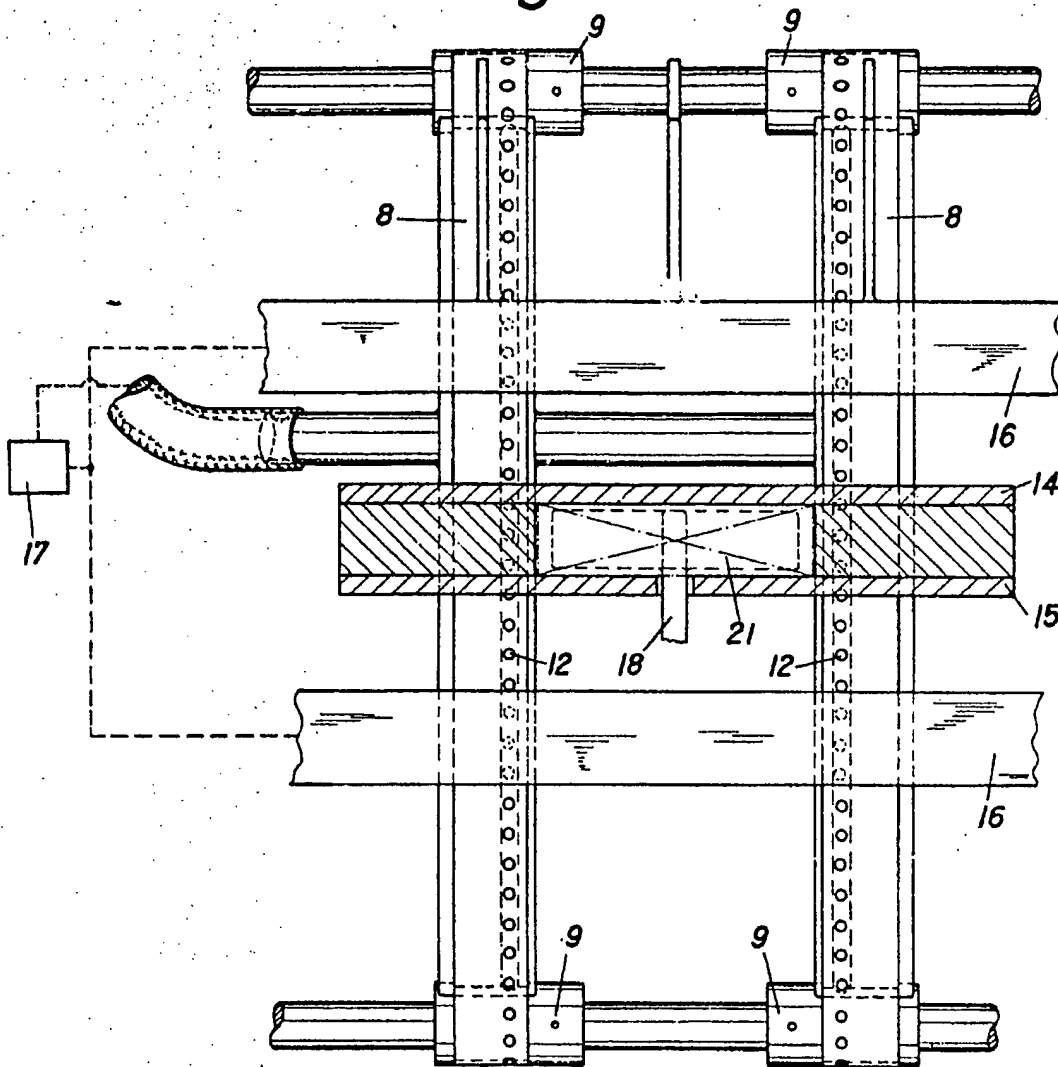


Fig. 2

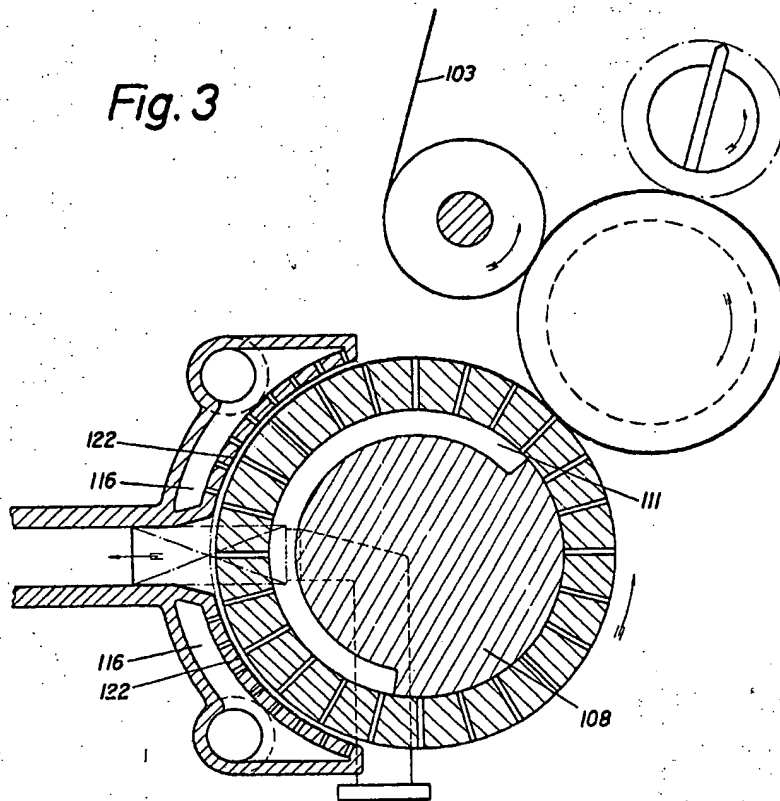


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Fig. 3



Bruxelles le 3 juin 1965.
Par Pon de Monsieur Alfred SCHMERMUND.

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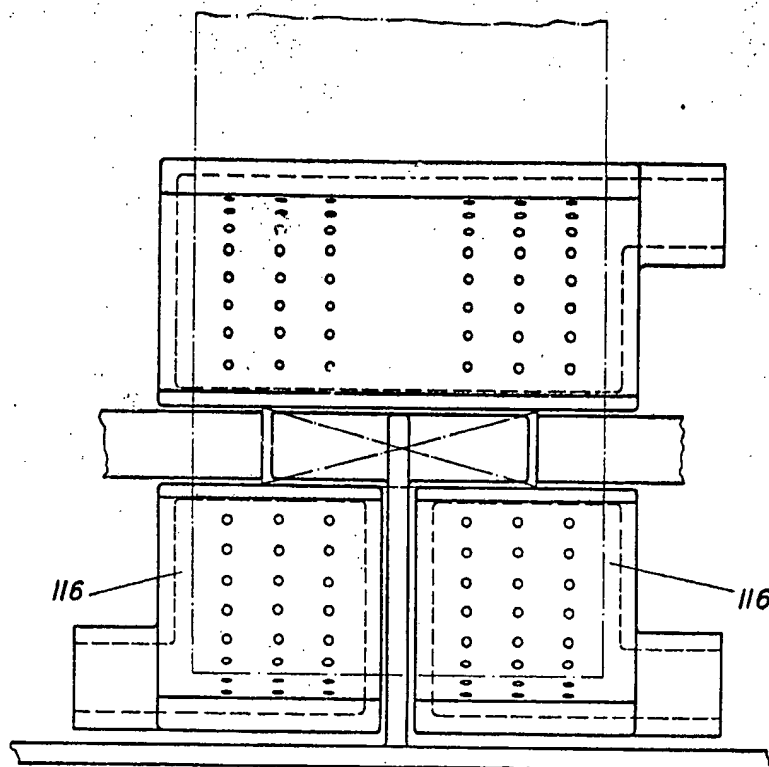
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Fig. 4



Bruxelles le 3 juin 1965.
Par Pon de Monsieur Alfred SCHMERMUND.

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